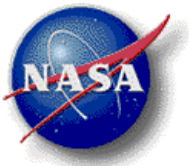


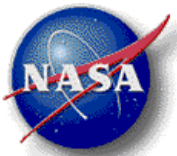
PVS COMMITTEE MEETING

PVS Program Modifications & Improvements



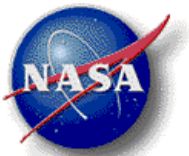
POINTS OF INTEREST

- New Strategy
 - Points of Contact
- Flexible Hoses
- Dewars
- High Pressure Operator License
- Permitting System
- Upcoming goals



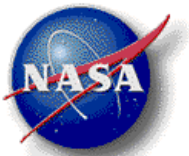
NEW STRATEGY

- Stage 1 Team – Brian Montgomery, Justin Mielcarek, Ronak Patel
 - Responsible for initial interactions with Owner/Operator
 - Prepare Owner/Operator for certification
 - Help Owner/Operator's compile all relevant information, and perform initial evaluation of PVS
- Stage 2 Team – PVS Engineers
 - Responsible for executing certification packages of PVS
 - Communicate with Owner/Operator on intended use of each PVS and assist in any remaining issues impeding certification



FLEXIBLE HOSES

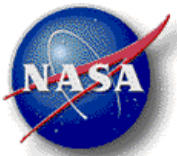
- When are they required to be “certified”
 - Located in a permanently fixed system
 - Containing hazardous fluids
 - Continuously operating near maximum allowable working pressures (MAWP)
- When are they considered “exempt”
 - Nominal size of $\frac{1}{2}$ ” or less and operating at ≤ 150 psig with **inert** fluid
 - Continuously operating at $\leq 20\%$ of hose MAWP with **inert** fluid at ambient temperatures



FLEXIBLE HOSES CONT.

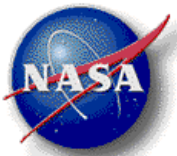
- If hose is determined to be “exempt”, an excluded tag will be issued for that hose
- Once excluded, the hose does not require regular maintenance, other than visual examination, as long as operating conditions are maintained

Code 540 Exempt
Test 09/11/2012
MOP – 600 PSIG
MAWP – 3000 PSIG
Inert Only



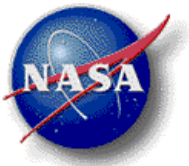
DEWARs

- “Exempt” if owned/maintained by third party in accordance with D.O.T. standards
 - Downstream components may still require certification based on design/use of PVS
 - Owner/Operator to be responsible for ensuring adequate maintenance by third party vendor
- NASA owned/maintained (high/low pressure Dewar)
 - If gas is regulated (with adequate safety devices) immediately following Dewar outlet then relief valve on Dewar is not considered primary safety and can be “exempt” from certification
 - If gas is not regulated (with no additional safety devices installed) and downstream equipment is exposed to full Dewar pressure then the relief valve is considered a primary safety device and must be certified/maintained
 - If all downstream components are rated higher than Dewar outlet then the Dewar relief valve is considered redundant and thus “exempt” from certification



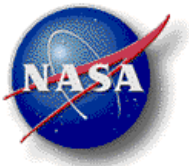
HIGH PRESSURE OPERATOR LICENSE

- When is it required?
 - If operating a PVS at pressures >150 psig
 - Temporary or permanent
 - Ground based PVS
 - GSFC owned
 - Non-GSFC owned
 - Systems determined by PSM to pose a risk to GSFC personnel/facilities/equipment
- Who does it apply to?
 - Government employees of GSFC
 - Contracted employees of GSFC



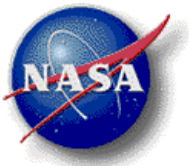
HIGH PRESSURE OPERATOR LICENSE CONT.

- How to obtain?
 - Contact GSFC PSM to put in a request for a license
 - Complete all required training
 - Provide all required documentation
- What training is required?
 - On The Job (OJT) of specific PVS
 - SATERN Courses
 - SMA-SAFE-NSTC-0317 *Safety in High Pressure Operations*
 - SMA-SAFE-NSTC-0319 *Compressed Gas Cylinder Safety* (if applicable)
 - SMA-SAFE-NSTC-0320 *Pressure Vessel/Systems Certification and Inspection*
 - SMA-SAFE-NSTC-0056 *Flexible Hose Safety* (if applicable)
 - Additional Safety training as required by supervisor



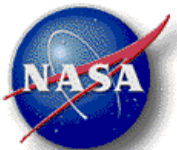
HIGH PRESSURE OPERATOR LICENSE CONT.

- What documentation is required?
 - Passing of medical examination
 - SATERN certificates
 - Proof of OJT and passing of written exam (issued by Supervisor or PSM)
- How to maintain the license?
 - Two (2) year renewal
 - Medical exam every two years
 - Inform PSM with updated documentation



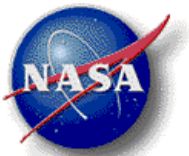
PERMIT SYSTEM

- GPR-8710.3, Section P.10.d and 1.12
- Definition: PVS assembled from PSM approved components for the purpose of supporting an R&D project or flight project I&T (GSE).
- Owner/Operator has to apply for “permit” to operate under Class-R designation.
- Does not apply to temporary systems that are in use for less than 60 days



PERMIT SYSTEM CONT.

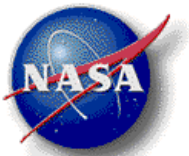
- Requirements:
 - All Class-R components are PSM approved
 - Owner/Operator uses PSM approved design rules for building desired PVS
 - Equipment is used for its intended purpose
 - PSM/Engineering Team performs annual audit of labs
 - Component ISI is tracked by the PVS Program and maintained by the O/O
 - O/O performs analyses specific to PVS and submit for review/approval
 - Relief valve sizing calcs
 - Thermal distortion calcs
 - Dynamic loads/stress calcs
 - Etc...



PERMIT SYSTEM CONT.

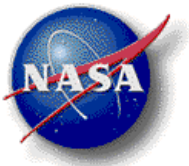
- Tagging:
 - PVS Program will issue approved tags for every component covered under Permit Plan
 - Tags will be colored Purple to distinguish from standard PVS certification tags
 - Tag will contain the original test date for each component, and O/O shall maintain based on ISI interval

Permit Plan Number
RV-01
Code 540
MAWP – 3000 PSIG
Fluid Code - LAD



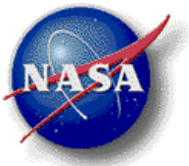
PERMIT SYSTEM CONT.

- Maintenance:
 - O/O to keep permit plan associated components separate from other PVS components
 - Components shall be kept free of debris
 - Labs will be audited annually to ensure compliance
- Considerations:
 - Do not alter existing/certified PVS to create new PVS under Permit Plan
 - Do not use un-certified PVS components
 - Do not use components deemed unfit for service
 - Do consider all desirable fluids to be used before selecting components



PVS GOALS

- Update GPR 8710.3B and clarify points of confusion
- Implement new Configuration Management System for Owner's use
- Increase awareness of PVS requirements throughout the center



QUESTIONS?